

CLAIMS

Sub 1 A1 What is claimed is:

1. A method of providing remote cryptographic services, the method
2 comprising:
3 a client requesting a cryptographic service;
4 establishing a secure connection between the client and a biometric certification
5 server (BCS);
6 receiving biometric data from a user;
7 the BCS performing the cryptographic service if the user is authenticated based
8 on the biometric authentication; and
9 the BCS returning the data to the client.

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2 the client generating a session key for use with the other server, and encrypting
3 the session key with a public key of the other server; and
4 the client closing the secure connection between the client and the BCS once the
5 session is established between the client and the other server.

1 6. The method of claim 2, further comprising:
2 detecting an access to a certification database of the client by an other server;
3 inserting a temporary certification from the BCS into the certification database of
4 the client; and
5 generating a true certificate if the other server chooses the temporary
6 certification.

1 7. The method of claim 1, wherein the cryptographic service is signing or
2 encrypting data.

1 8. The method of claim 7, further comprising the BCS:
2 retrieving a private key/public key pair for the user; and
3 performing the cryptographic service with the private or the public key.

1 9. The method of claim 1, wherein the client requesting a cryptographic
2 service comprises one of the following: detecting an access to a certificate database of the
3 client, detecting the user attempting to perform a cryptographic activity.

1 10. A method of providing a certificate from a client to a server, the method
2 comprising:
3 receiving a request for a certificate from the server;
4 forwarding the request to a biometric certification server (BCS);

5 receiving a biometric identification from the client and forwarding the biometric
6 identification to the BCS;
7 if the biometric identification matches a registered user on the BCS, receiving a
8 certificate including a public key of the client certified by the BCS; and
9 forwarding the certificate to the server, thereby identifying the client to the
10 server.

1 11. The method of claim 10, further comprising:
2 detecting an access to a certification database by the server;
3 inserting a temporary certification from the BCS into the certification database;
4 and
5 generating a true certificate if the server chooses the temporary certification.

12. The method of claim 10, further comprising:
the BCS generating a disposable public/private key pair in response to the
request; and
the BCS certifying the disposable public key of the user.

13. An apparatus for performing remote cryptographic functions comprising:
a crypto-proxy interface for receiving a request for a cryptographic function from
a client on a secure connection;
an authentication engine for authenticating the user based on biometric data;
a cryptographic engine for performing the cryptographic functions; and
the crypto-proxy interface for returning data to the client, after the cryptographic
functions are performed.

14. The apparatus of claim 13, further comprising:

2 a database including user credentials;
3 the authentication engine retrieving user biometric template from the database
4 and comparing the biometric template to the biometric data received from the user.

1 15. The apparatus of claim 13, further comprising:
2 a dynamic key generation engine for generating a temporary public key/private
3 key pair, the key pair used for establishing a session between the client and an other
4 server.

1 16. The apparatus of claim 15, further comprising the cryptographic engine
2 generating a certificate including the temporary public key, certified by the crypto-
3 server's private key.

1 17. The apparatus of claim 15, the dynamic key generation engine destroying
2 the temporary key pair after the session between the client and the other server is
3 successfully established.

1 18. The apparatus of claim 13, further comprising:
2 user self-registration interface permitting a user to chose a handle and register a
3 biometric template.

1 19. The apparatus of claim 18, further comprising:
2 a registration engine for receiving biometric data from the user during a
3 registration process, and further for extracting the biometric template for the user; and
4 a user credential database for storing the handle and the biometric template of
5 the user.

1 20. The apparatus of claim 17, further comprising:
2 the registration engine further for generating a persistent private key/public key
3 pair; and
4 a database for storing the persistent private key/public key pair.

1 21. The apparatus of claim 13, further comprising:
2 a database for storing a persistent private key/public key pair; and
3 the cryptographic engine for using the persistent private key or public key when
4 appropriate to perform the cryptographic functions.

1 22. An apparatus for permitting remote cryptographic functions comprising:
2 a crypto-API (application program interface) for receiving cryptographic
3 function requests; and
4 a cryptographic service provider for establishing a secure connection to a remote
5 crypto-server, and having the crypto-server perform the cryptographic function; and
6 a sensor for receiving biometric data from a user, the biometric data sent to the
7 crypto-server to authenticate the user.

1 23. An apparatus comprising:
2 a client comprising:
3 a crypto-API (application program interface) for receiving
4 cryptographic function requests; and
5 a cryptographic service provider for establishing a secure
6 connection to a remote crypto-server, and having the crypto-server
7 perform the cryptographic function; and
8 a sensor for receiving biometric data from a user, the biometric data
9 sent to the crypto-server to authenticate the user;

10 the remote crypto-server comprising:
11 a crypto-proxy interface for receiving a request for the
12 cryptographic function from the client on the secure connection;
13 an authentication engine for authenticating the user based on the
14 biometric data;
15 a cryptographic engine for performing the cryptographic functions;
16 and
17 the crypto-proxy interface for returning data to the client, after the
18 cryptographic functions are performed.